

In re Application of: Amir BARZILAY et al
Serial No.: 10/590,477
Filed: August 24, 2006
Office Action Mailing Date: January 29, 2010

Examiner: HELLING Kaitlyn Elizabeth
Group Art Unit: 3739
Attorney Docket: 32110
Confirmation No.: 8675

In the Claims:

1. (Currently Amended) A method of treating unwanted hair, comprising transmitting acoustic waves at a frequency of from about 150 kHz to about 1300 kHz through the hair so as to generate heat at a follicle, a dermal papilla, a hair bulge and/or a germinal matrix of the hair, said heat being in itself sufficient to damage or destroy said follicle, said dermal papilla, said hair bulge and/or said germinal matrix.

2. (Original) The method of claim 1, further comprising using a wave condenser for condensing said acoustic waves, prior to said transmitting of said acoustic waves through the hair.

3. (Original) The method of claim 1, further comprising gripping the hair prior to transmitting of said acoustic waves so as to enhance acoustic coupling between the hair and said acoustic waves.

4. (Currently Amended) The method of claim 3, wherein said gripping is by a wave condenser operative to grip said hair and the method further comprises~~ing~~ using said wave condenser for condensing said acoustic waves, prior to said transmitting of said acoustic waves through the hair, wherein said gripping comprises positioning the hair and/or said wave condenser such that a propagation direction of said acoustic waves while entering said wave condenser is generally parallel to a longitudinal axis of the hair.

5. (Currently Amended) The method of claim 3, wherein said gripping is by a wave condenser operative to grip said hair and the method further comprises~~ing~~ using said wave condenser for condensing said acoustic waves, prior to said transmitting of said acoustic waves through the hair, wherein said gripping comprises positioning the hair and/or said wave condenser such that a propagation direction of

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said acoustic waves while entering said wave condenser is generally perpendicular to a longitudinal axis of the hair.

6. (Currently Amended) The method of claim 3, wherein said gripping is by a wave condenser operative to grip said hair and the method further comprising using said wave condenser for condensing said acoustic waves, prior to said transmitting of said acoustic waves through the hair, wherein said gripping comprises positioning the hair and/or said wave condenser such that a propagation direction of said acoustic waves while entering said wave condenser is generally inclined to a longitudinal axis of the hair.

7. (Original) The method of claim 3, further comprising pulling the hair so as to effect a detachment of the hair.

8. (Original) The method of claim 3, wherein said acoustic coupling is characterized by a coupling length selected such that said heat at said follicle, said dermal papilla, said hair bulge and/or said germinal matrix results in a temperature increment of at least 20 degrees centigrade.

9-11. (Canceled)

12. (Original) The method of claim 1, wherein at least one of: a frequency, a power density and duration of transmission of said acoustic waves is selected so as to minimize vibrations of the hair.

13-15. (Canceled)

16. (Original) The method of claim 1, wherein at least one of: a frequency, a power density and duration of transmission of said acoustic waves is selected such that said generation of said heat is such that said heat at said follicle, said

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dermal papilla, said hair bulge and/or said germinal matrix results in a temperature increment of at least 20 degrees centigrade.

17. (Original) The method of claim 16, wherein said frequency is an off-resonance frequency.

18. (Original) The method of claim 16, wherein said acoustic waves comprise ultrasound waves.

19-24. (Canceled)

25. (Currently Amended) A device for treating unwanted hair protruding from a skin, the device comprising:

a transducer for generating acoustic waves at a frequency of from about 150 kHz to about 1300 kHz; and

~~characterized in that the device further comprises~~ a wave condenser, for gripping the hair to establish acoustic coupling between said acoustic waves and the hair in a manner such that said acoustic waves are condensed, transmitted through the hair past the skin and generate heat at a follicle, a dermal papilla, a hair bulge and/or a germinal matrix of the hair;

said heat being in itself sufficient to damage or destroy said follicle, said dermal papilla, said hair bulge and/or said germinal matrix.

26. (Original) The device of claim 25, wherein said wave condenser is designed and constructed such that a propagation direction of said acoustic waves while entering said wave condenser is generally parallel to a longitudinal axis of the hair.

27. (Original) The device of claim 25, wherein said wave condenser is designed and constructed such that a propagation direction of said acoustic waves

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while entering said wave condenser is generally perpendicular to a longitudinal axis of the hair.

28. (Original) The device of claim 25, wherein said wave condenser is designed and constructed such that a propagation direction of said acoustic waves while entering said wave condenser is generally inclined to a longitudinal axis of the hair.

29-32. (Canceled)

33. (Original) The device of claim 25, wherein at least one of: a frequency, a power density and duration of transmission of said acoustic waves is selected so as to minimize vibrations of the hair.

34-36. (Canceled)

37. (Original) The device of claim 25, wherein at least one of: a frequency, a power density and a duration of transmission of said acoustic waves is selected such that said heat at said follicle, said dermal papilla, said hair bulge and/or said germinal matrix results in a temperature increment of at least 20 degrees centigrade.

38. (Original) The device of claim 37, wherein said frequency is an off-resonance frequency.

39. (Original) The device of claim 37, wherein said transducer is an ultrasound transducer generating ultrasound waves.

40-47. (Canceled)

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48. (Original) The device of claim 25, further comprising a focusing element coupling said transducer and said wave condenser, said focusing element being designed and constructed to focus said acoustic waves into said wave condenser.

49-53. (Canceled)

54. (Original) The device of claim 39, wherein said wave condenser comprises a chamber configured to receive the hair such that energy of said acoustic waves is transferred to the hair from a plurality of directions.

55-300. (Canceled)

301. (Previously Presented) The method of claim 18, wherein said ultrasound waves are at a frequency of at least 500 kHz.

302. (Previously Presented) The device of claim 39, wherein said ultrasound waves are at a frequency of at least 500 kHz.

303. (New) A method of treating unwanted hair, comprising transmitting acoustic waves through the hair so as to increase a temperature at a follicle, a dermal papilla, a hair bulge and/or a germinal matrix of the hair by at least 20 degrees centigrade.

304. (New) A device for treating unwanted hair protruding from a skin, the device comprising:

a transducer for generating acoustic waves; and

a wave condenser, for gripping the hair to establish acoustic coupling between said acoustic waves and the hair in a manner such that said acoustic waves are condensed, transmitted through the hair past the skin and increase a temperature at a

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follicle, a dermal papilla, a hair bulge and/or a germinal matrix of the hair by at least 20 degrees centigrade.

305. (New) A method of treating unwanted hair, comprising transmitting acoustic waves through the hair so as to so as to generate heat at a follicle, a dermal papilla, a hair bulge and/or a germinal matrix of the hair, wherein at least one of: a frequency, a power density and duration of transmission of said acoustic waves is selected such that a characteristic amplitude of longitudinal vibrations of the hair is below 10 μm .

306. (New) A device for treating unwanted hair protruding from a skin, the device comprising:

a transducer for generating acoustic waves; and

a wave condenser, for gripping the hair to establish acoustic coupling between said acoustic waves and the hair in a manner such that said acoustic waves are condensed, transmitted through the hair past the skin and generate heat at a follicle, a dermal papilla, a hair bulge and/or a germinal matrix of the hair;

wherein at least one of: a frequency, a power density and duration of transmission of said acoustic waves is selected such that a characteristic amplitude of longitudinal vibrations of the hair is below 10 μm .